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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,024	07/28/2003	Peter G. Webb	10003513-2	7639

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P. O. Box 7599
Loveland, CO 80537-0599

EXAMINER

GROSS, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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1639

MAIL DATE	DELIVERY MODE
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02/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/629,024	WEBB, PETER G.	
	Examiner	Art Unit	
	Christopher M. Gross	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17 and 19-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 19-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Responsive to communications entered 10/30/2007. Claims 17,19-37 are pending. Claims 17,19-37 are examined herein.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/2007 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

This application is a DIV of application 09/628963, filed on 7/31/2000 (now PAT 6599693). Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 121 is once again acknowledged.

Maintained Claim Rejection(s) - 35 USC § 102

Claims 17, 20-23, 25, 26, 28, 29-31, 33-34, 36,37 are rejected under 35 U.S.C. 102(a or e) as being anticipated by **Gamble et al** (US Patent 6001309).

The current claimed invention is drawn to an apparatus for fabricating an array, comprising:

- (a) a head system with multiple pulse jet drop dispensers;
- (b) a transport system to move the head system with respect to a substrate;
- (c) a processor which controls the head and transport system so as to fabricate an array of multiple feature sets, wherein each feature set is made up of multiple features, wherein said processor deposits at least one set of drops from a

corresponding same dispenser onto a substrate for each of multiple sets of neighboring features, so as to form the array with the feature sets formed from drops deposited by respective different dispensers; wherein a distance between at least two neighboring sets of features is greater than an average distance between features within the sets, both as measured in a same direction.

Claims 20-23, 25, 26, 28, 36,37 represent variations thereof. Claims 29-31, 33-34 are drawn to a computer program for controlling the apparatus set forth in claims 17, 20-23, 25, 26 and 28.

Gamble et al teach, throughout the document, and especially figures 6 and 10, column 13 line 28 and column 1 lines 33-39, an apparatus comprising jets formed in arrays, an x-y positioner and a master controller, all for fabricating arrays of arrays (multiple arrays) composed of microspots (features) comprising biological oligomers.

The apparatus for fabricating of large arrays of microspots of Gamble et al reads on the 'apparatus for fabricating an array' of the preamble of claim 17. The jets formed in arrays of Gamble et al read on the 'head system with multiple pulse jet drop dispensers' of claim 17 part (a) as well as 'the different dispensers of the head system are moved in unison by the transport system' of claim 22. The x-y positioner of Gamble et al reads on the 'transport system to move the head system with respect to a substrate' of claim 17 part (b). The master controller of Gamble et al reads on the 'processor which controls the head and transport system' of claim 17 part (c).

Gamble et al teach in column 9, lines 15-18 that the groups of jets can provide a plurality of spots being formed simultaneously, concurrently or consecutively, in an

interrupted manner. Furthermore, in column 12, lines 26-28 Gamble et al state there is an advantage to include 2 to 3 fold [spot] redundancy, therein providing neighboring feature sets.

Simultaneous or concurrent drop deposition with two identically loaded heads of Gamble et al reads as capable of 'deposit[ing] at least one set of drops from a corresponding same dispenser onto a substrate for each of multiple sets of neighboring features, so as to form the array with the feature sets formed from drops deposited by respective different dispensers' of claim 17 part (c). Whereas, consecutive deposition of Gamble et al reads as capable of 'different dispensers deposit[ing] at least some of the drops of their respective drop sets on a same pass over the substrate' of claim 23.

In column 5, line 51, Gamble et al teach the apparatus is capable of depositing nucleotide monomers, which when combined with using the groups of jets in the consecutive manner, reads on the 'biomonomer containing drops is deposited from the same dispenser for each feature of the feature sets' of claim 21.

In column 9, lines 2-3, Gamble et al teach a jet sample reservoir holding 0.2 to 20 microliters, reading on 'each dispenser holding no more than 100 microliters' of claim 20.

In figure 6 Gamble et al disclose a 7 by 5 array comprising a 5 by 5 neighboring feature set under construction having approximately a 2 x distance between the neighboring sets of features, reading on '[a] distance between at least two neighboring sets of features [being] greater than an average distance between features within the sets, both as measured in a same direction' of claim 17 as well as a 'a distance

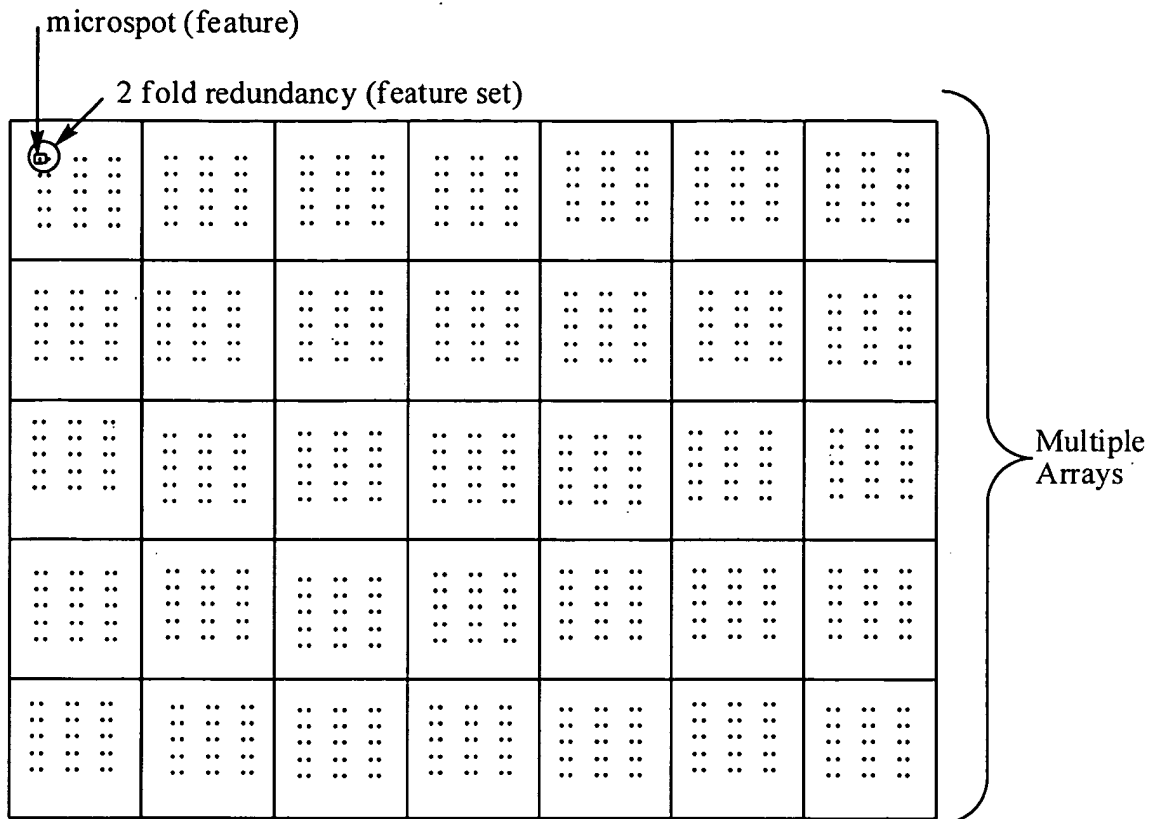
between at least two neighboring feature sets [being] greater than a greatest distance separating features within the sets, both distances as measured in a same direction' of claim 26. The features have the same spacing, such as set forth in claim 37.

In figure 7, Gamble et al teach an alternative embodiment in which 16 microspot features are deposited circumferentially, on a disk, which reads on a 'set of neighboring features includ[ing] at least four features in a non-linear configuration' of claim 25

In the abstract Gamble et al teach that the distance between features is at least about 15 microns and, as mentioned above, that there is an advantage to include 2 to 3 fold [spot] redundancy which when combined reads on 'the distance between neighboring sets of features is no greater than 2 mm' of claim 28.

In so far as the processor fabricating multiple arrays on a substrate, wherein each of said multiple arrays comprises multiple feature sets, wherein each feature set is made up of multiple features," as set forth in new claim 36 as well as "fabricat[ing] an array of multiple feature sets, wherein each feature set is made up of multiple features," set forth in amended claim 17 the examiner submits that, in considering Gamble et al as a whole, figure 6 represents a work-in-progress *without* redundancy.

On the other hand, employing the 2 fold redundancy embodiment of Gamble would provide multiple arrays comprising multiple feature sets comprising multiple features, as illustrated below:



In column 4, first paragraph, Gamble et al teach that the entire system is controlled by a computer program, including x-y movement of the dispensers, droplet deposition, etc. Said computer program of Gamble et al provides all of the apparatus capabilities mentioned above and therefore reads on the computer program per claims 29-31, 33-34 that controls the apparatus set forth in claims 17,20-23, 25, 26 and 28 of the instant application.

Please note that the above rejection has been modified from the original version to more clearly address applicants' newly amended and/or added claims and/or arguments.

Response to Arguments

Applicant argues not all elements are taught.

Applicant's arguments have been fully considered but they are not deemed persuasive for the following reasons.

Specifically, applicant argues see p 6 (10/30/2007) Gamble et al do not teach multiple arrays made up of feature sets of multiple features. However applicants attention is again respectfully invited to column 12, lines 26-28 where Gamble et al state there is an advantage to include 2 to 3 fold [spot] redundancy. Furthermore, as illustrated above, the examiner submits the redundancy embodiment of Gamble et al provides multiple arrays made up of feature sets of multiple features.

Examiner Suggestion

The paragraph bridging pp 3-4 of the Office Action mailed 6/5/2007 and the following advisory action mailed 10/17/2007 mentioned the language of claim 1 drawn to "corresponding same dispenser" and "respective different dispenser" is broad enough to read on Gamble et al based upon column 9, lines 15-18 where Gamble et al mention " the groups of jets can provide a plurality of spots being formed simultaneously, concurrently or consecutively," in concert with column 10, lines 2-6 where Gamble et al teach, "during operation, each jetting device in turn may provide for a plurality of spots of the same reagent at different sites on the substrate, so that each portion of the substrate has the same reagent at comparable places at each array."

In this regard, however the examiner would like to suggest explicit *assignment* of one particular dispenser to one particular feature set, with support found in figure 4 of

the present application, would very likely distinguish the claimed subject matter from that of Gamble et al if incorporated into claims.

Maintained Claim Rejection(s) - 35 USC § 103

Claims 17, 18, 20-23, 25, 26, 28, 29-31, 33-34 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gamble et al** (US Patent 6001309) in view of **Suovaniemi et al** (US Patent 4215092).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gamble et al** (US Patent 6001309) in view of **Suovaniemi et al** (US Patent 4215092) as applied to claims 17,18,20-23, 25, 26, 28, 29-31, 33-34 and 19 above, and further in view of **Quinn et al** (US Patent 4685998)

Response to Arguments

Applicant does not offer further arguments regarding the above obviousness rejections beyond what was set forth with regard to the 35 U.S.C. § 102 rejection. To the extent that Applicant is merely repeating their previous argument, the Examiner contends that those issues were adequately addressed in the above sections, which are incorporated in their entireties herein by reference.

New Claim Rejection - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17, 20-23, 25, 26, 28, 29-31, 33-34, 36,37 and 24,32,35 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gamble et al** (US Patent 6001309) in view of **Bass** (US Patent 6420180).

Gamble et al is relied on as above.

Gamble et al do not teach at least ten different dispensers (claims 24,32) or a pulse jet dispensers having a displacement error (claim 35).

Bass teaches, throughout the document and especially column 7 line 44 through column 8 lines 1-36 a manner of compensating for displacement errors. Bass further teach in figure 7 a head comprising more than ten dispensers.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to utilize the process of compensating for

displacement errors comprising a head with more than ten dispensers of Bass in concert with the jet droplet device of Gamble et al.

One of ordinary skill in the art would have been motivated to use the process of compensating for displacement errors comprising a head with more than ten dispensers of Bass in concert with the jet droplet device of Gamble et al et al because it is desirable to provide a means by which serious errors would be reduced, as noted by Bass in column 3, lines 12-13, in order to generate higher quality microarrays.

One of ordinary skill in the art would have had a reasonable expectation of success in compensating for displacement errors comprising a head with more than ten dispensers per Bass in concert with the jet droplet device of Gamble et al because both Bass and Gamble et al concern inkjet mediated oligonucleotide synthesis directed toward the preparation of microarrays. Thus, the protocol and head of Bass lies well within the scope of the teaching(s) of Gamble et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Gross whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Douglas Schultz can be reached on 571 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Christopher M Gross
Examiner
Art Unit 1639

cg


MARK L. SHIBUYA
PRIMARY EXAMINER